

WHAT IS CLAIMED AS NEW AND DESIRED TO BE PROTECTED BY  
LETTERS PATENT OF THE UNITED STATES OF AMERICA. IS:

1. A threaded fastener, for insertion within diverse types of substrates, comprising wood, metal, thermoplastics, composite materials, concrete, hard aggregate, and the like, comprising:

5           a shank portion extending circumferentially around a longitudinal axis;

              a head portion formed upon a first end of said shank portion;

10           a tapered tip portion formed upon a second opposite end of said shank portion;

15           a substantially continuous single helical thread formed upon said shank portion, wherein individual thread portions of said substantially continuous single helical thread comprise crest portions, and wherein further, individual thread portions of said substantially continuous single helical thread comprise upper and lower flank surfaces with an included angle, defined between said upper and lower flank surfaces, being within the range of 40-60°; and

20           a plurality of saw-blade type teeth formed upon peripheral edge portions of said crest portions of said individual thread portions of said substantially continuous single helical thread so as to extend substantially continuously and contiguously around the entire circumferential extent of said threaded screw fastener,

25           whereby a single one of said threaded fasteners can be used for insertion within the diverse types of sub-

strates comprising wood, metal, thermoplastics, composite materials, concrete, hard aggregate, and the like.

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2. The threaded fastener as set forth in Claim 1, wherein:  
said included angle, defined between said upper  
and lower flank surfaces, is preferably within the range of  
40-45°.

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3. The threaded fastener as set forth in Claim 2, wherein:  
said included angle, defined between said upper  
15 and lower flank surfaces, is preferably 40°.

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4. The threaded fastener as set forth in Claim 2, wherein:  
said included angle, defined between said upper  
and lower flank surfaces, is preferably 45°.

25 5. The threaded fastener as set forth in Claim 1, wherein:  
each one of said plurality of saw-blade type teeth  
has a substantially trapezoidal configuration.

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6. The threaded fastener as set forth in Claim 5, wherein:  
valleys are defined between successive ones of  
said plurality of substantially contiguous substantially  
trapezoidal-shaped saw-blade type teeth.

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7. The threaded fastener as set forth in Claim 6, wherein:  
each one of said valleys comprises an included  
10 angle of 100°.

8. The threaded fastener as set forth in Claim 1, wherein:  
15 said plurality of substantially contiguous saw-  
blade type teeth are only formed upon peripheral edge por-  
tions of said crest portions of leading ones of said indi-  
vidual thread portions of said substantially continuous  
single helical thread.

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9. The threaded fastener as set forth in Claim 8, wherein:  
said leading ones of said individual thread por-  
25 tions of said substantially continuous single helical thread  
comprises approximately the leading one-third to one-half of  
the number of individual thread portions of said substan-  
tially continuous single helical thread formed upon said  
shank portion of said threaded fastener.

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10. The threaded fastener as set forth in Claim 1, wherein:  
said plurality of substantially contiguous saw-blade type teeth have a predetermined pitch defined between adjacent ones of said plurality of substantially contiguous  
5 saw-blade type teeth; and  
each one of plurality of substantially contiguous saw-blade type teeth has a predetermined radial depth dimension.

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11. The threaded fastener as set forth in Claim 10, wherein:  
said threaded fastener comprises either one of a number six, a number eight, a number ten, a number twelve, 15 and a number fourteen sized threaded fastener;  
said predetermined pitch, respectively defined between adjacent ones of said plurality of substantially contiguous saw-blade type teeth, is within a range of 0.60-0.80 mm; and  
20 each one of plurality of substantially contiguous saw-blade type teeth has a predetermined depth dimension which is within a range of 0.21-0.29 mm.

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12. A threaded fastener, for insertion within diverse types of substrates, comprising wood, metal, thermoplastics, composite materials, concrete, hard aggregate, and the like, comprising:  
30 a shank portion extending circumferentially around a longitudinal axis;

a head portion formed upon a first end of said shank portion;

a tapered tip portion formed upon a second opposite end of said shank portion;

5 a single helical thread formed upon said shank portion so as to comprise individual thread portions which are substantially continuous except upon said tapered tip portion wherein an axially oriented slot, intercepting individual thread portions defined upon said tapered tip portion, renders said individual thread portions defined upon said tapered tip portion discontinuous, said individual thread portions of said single helical thread comprising crest portions, and wherein further, individual thread portions of said single helical thread comprise upper and lower 10 flank surfaces with an included angle, defined between said upper and lower flank surfaces, being within the range of 15 40-60°; and

a plurality of saw-blade type teeth formed upon peripheral edge portions of said crest portions of said individual thread portions of said helical thread so as to extend substantially continuously and contiguously around the entire circumferential extent of said threaded screw fastener,

25 whereby a single one of said threaded fasteners can be used for insertion within the diverse types of substrates comprising wood, metal, thermoplastics, composite materials, concrete, hard aggregate, and the like.

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13. The threaded fastener as set forth in Claim 12, wherein:

said included angle, defined between said upper and lower flank surfaces, is preferably within the range of 40-45°.

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14. The threaded fastener as set forth in Claim 13, wherein:  
                  said included angle, defined between said upper and lower flank surfaces, is preferably 40°.

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15. The threaded fastener as set forth in Claim 13, wherein:  
                  said included angle, defined between said upper  
15 and lower flank surfaces, is preferably 45°.

16. The threaded fastener as set forth in Claim 12, wherein:  
20                  each one of said plurality of saw-blade type teeth has a substantially trapezoidal configuration.

25 17. The threaded fastener as set forth in Claim 16, wherein:  
                  valleys are defined between successive ones of said plurality of substantially contiguous substantially trapezoidal-shaped saw-blade type teeth.

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18. The threaded fastener as set forth in Claim 17, wherein:  
each one of said valleys comprises an included  
angle of 100°.

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19. The threaded fastener as set forth in Claim 12, wherein:  
said plurality of substantially contiguous saw-  
blade type teeth are only formed upon peripheral edge por-  
10 tions of said crest portions of leading ones of said indi-  
vidual thread portions of said single helical thread.

15 20. The threaded fastener as set forth in Claim 19, wherein:  
said leading ones of said individual thread por-  
tions of said single helical thread comprises approximately  
the leading one-third to one-half of the number of individu-  
al thread portions of said single helical thread formed upon  
20 said shank portion of said threaded fastener.

21. The threaded fastener as set forth in Claim 12, wherein:  
25 said plurality of substantially contiguous saw-  
blade type teeth have a predetermined pitch defined between  
adjacent ones of said plurality of substantially contiguous  
saw-blade type teeth; and  
each one of plurality of substantially contiguous  
30 saw-blade type teeth has a predetermined radial depth di-  
mension.

22. The threaded fastener as set forth in Claim 21, wherein:  
said threaded fastener comprises either one of a  
number six, a number eight, a number ten, a number twelve,  
and a number fourteen sized threaded fastener;

5                   said predetermined pitch, respectively defined be-  
tween adjacent ones of said plurality of substantially con-  
tiguous saw-blade type teeth, is within a range of 0.60-0.80  
mm; and

10                   each one of plurality of substantially contiguous  
saw-blade type teeth has a predetermined depth dimension  
which is within a range of 0.21-0.29 mm.

15 23. A threaded fastener, for insertion within diverse types  
of substrates, comprising wood, metal, thermoplastics, com-  
posite materials, concrete, hard aggregate, and the like,  
comprising:

20                   a shank portion extending circumferentially  
around a longitudinal axis;

                      a head portion formed upon a first end of said  
shank portion;

                      a tapered tip portion formed upon a second oppo-  
site end of said shank portion;

25                   a substantially continuous single helical thread  
formed upon said shank portion, wherein individual thread  
portions of said substantially continuous single helical  
thread comprise crest portions, and wherein further, indivi-  
dual thread portions of said substantially continuous single  
30                   helical thread comprise upper and lower flank surfaces with

an included angle, defined between said upper and lower flank surfaces, being within the range of 40-60°; and

5 a plurality of saw-blade type teeth formed upon peripheral edge portions of said crest portions of said individual thread portions of said substantially continuous single helical thread which are disposed only upon said shank portion so as to extend substantially continuously and contiguously around the entire circumferential extent of said threaded screw fastener,

10 whereby a single one of said threaded fasteners can be used for insertion within the diverse types of substrates comprising wood, metal, thermoplastics, composite materials, concrete, hard aggregate, and the like.

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24. The threaded fastener as set forth in Claim 23, wherein:  
said included angle, defined between said upper and lower flank surfaces, is preferably within the range of  
20 40-45°.

25. The threaded fastener as set forth in Claim 24, wherein:  
said included angle, defined between said upper and lower flank surfaces, is preferably 40°.

30 26. The threaded fastener as set forth in Claim 23, wherein:

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said included angle, defined between said upper  
and lower flank surfaces, is preferably 45°.

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27. The threaded fastener as set forth in Claim 23, wherein:  
each one of said plurality of saw-blade type teeth  
has a substantially trapezoidal configuration.

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28. The threaded fastener as set forth in Claim 27, wherein:  
valleys are defined between successive ones of  
said plurality of substantially contiguous substantially  
trapezoidal-shaped saw-blade type teeth.

29. The threaded fastener as set forth in Claim 28, wherein:  
20 each one of said valleys comprises an included  
angle of 100°.

25 30. The threaded fastener as set forth in Claim 23, wherein:  
said plurality of substantially contiguous saw-  
blade type teeth are only formed upon peripheral edge por-  
tions of said crest portions of leading ones of said indi-  
vidual thread portions of said substantially continuous  
30 single helical thread.

31. The threaded fastener as set forth in Claim 30, wherein:  
said leading ones of said individual thread portions of said substantially continuous single helical thread comprises approximately the leading one-third to one-half of  
5 the number of individual thread portions of said substantially continuous single helical thread formed upon said shank portion of said threaded fastener.

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32. The threaded fastener as set forth in Claim 23, wherein:  
said plurality of substantially contiguous saw-blade type teeth have a predetermined pitch defined between adjacent ones of said plurality of substantially contiguous  
15 saw-blade type teeth; and  
each one of plurality of substantially contiguous saw-blade type teeth has a predetermined radial depth dimension.

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33. The threaded fastener as set forth in Claim 32, wherein:  
said threaded fastener comprises either one of a number six, a number eight, a number ten, a number twelve,  
25 and a number fourteen sized threaded fastener;  
said predetermined pitch, respectively defined between adjacent ones of said plurality of substantially contiguous saw-blade type teeth, is within a range of 0.60-0.80 mm; and  
30 each one of plurality of substantially contiguous saw-blade type teeth has a predetermined depth dimension

which is within a range of 0.21-0.29 mm.

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